

07/08/99
Jc662 U.S. PTO

Practitioner's Docket No. 99-40132-US

PATENT

1A

Preliminary Classification:

Proposed Class:

Subclass:

NOTE: "All applicants are requested to include a preliminary classification on newly filed patent applications. The preliminary classification, preferably class and subclass designations, should be identified in the upper right-hand corner of the letter of transmittal accompanying the application papers, for example 'Proposed Class 2, subclass 129.'" M.P.E.P. § 601, 7th ed.

07/08/99
Jc662 U.S. PTO

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Box Patent Application
Assistant Commissioner for Patents
Washington, D.C. 20231

NEW APPLICATION TRANSMITTAL

Transmitted herewith for filing is the patent application of

Inventor(s): Dean R. Shacklett et al.

WARNING: 37 C.F.R. § 1.41(a)(1) points out:

"(a) A patent is applied for in the name or names of the actual inventor or inventors.

"(1) The inventorship of a nonprovisional application is that inventorship set forth in the oath or declaration as prescribed by § 1.63, except as provided for in § 1.53(d)(4) and § 1.63(d). If an oath or declaration as prescribed by § 1.63 is not filed during the pendency of a nonprovisional application, the inventorship is that inventorship set forth in the application papers filed pursuant to § 1.53(b), unless a petition under this paragraph accompanied by the fee set forth in § 1.17(f) is filed supplying or changing the name or names of the inventor or inventors."

For (title):

FABRIC PADS WITH A PRINTED DESIGN AND A METHOD OF MAKING FABRIC PADS WITH A PRINTED DESIGN

CERTIFICATION UNDER 37 C.F.R. § 1.10*

(Express Mail label number is mandatory.)

(Express Mail certification is optional.)

I hereby certify that this New Application Transmittal and the documents referred to as attached therein are being deposited with the United States Postal Service on this date July 8, 1999, in an envelope as "Express Mail Post Office to Addressee," mailing Label Number EE851966845US, addressed to the: Assistant Commissioner for Patents, Washington, D.C. 20231.

Elaine Byrnes

(type or print name of person mailing paper)

Elaine Byrnes

Signature of person mailing paper

WARNING: Certificate of mailing (first class) or facsimile transmission procedures of 37 C.F.R. § 1.8 cannot be used to obtain a date of mailing or transmission for this correspondence.

***WARNING:** Each paper or fee filed by "Express Mail" must have the number of the "Express Mail" mailing label placed thereon prior to mailing. 37 C.F.R. § 1.10(b).

"Since the filing of correspondence under § 1.10 without the Express Mail mailing label thereon is an oversight that can be avoided by the exercise of reasonable care, requests for waiver of this requirement will not be granted on petition." Notice of Oct. 24, 1996, 60 Fed. Reg. 56,439, at 56,442.

(New Application Transmittal [4-1]—page 1 of 11)

1. Type of Application

This new application is for a(n)

(check one applicable item below)

- ☒ Original (nonprovisional)
☐ Design
☐ Plant

WARNING: Do not use this transmittal for a completion in the U.S. of an International Application under 35 U.S.C. § 371(c)(4), unless the International Application is being filed as a divisional, continuation or continuation-in-part application.

WARNING: Do not use this transmittal for the filing of a provisional application.

NOTE: If one of the following 3 items apply, then complete and attach **ADDED PAGES FOR NEW APPLICATION TRANSMITTAL WHERE BENEFIT OF A PRIOR U.S. APPLICATION CLAIMED** and a **NOTIFICATION IN PARENT APPLICATION OF THE FILING OF THIS CONTINUATION APPLICATION**.

- ☐ Divisional.
☐ Continuation.
☐ Continuation-in-part (C-I-P).

2. Benefit of Prior U.S. Application(s) (35 U.S.C. §§ 119(e), 120, or 121)

NOTE: A nonprovisional application may claim an invention disclosed in one or more prior filed copending nonprovisional applications or copending international applications designating the United States of America. In order for a nonprovisional application to claim the benefit of a prior filed copending nonprovisional application or copending international application designating the United States of America, each prior application must name as an inventor at least one inventor named in the later filed nonprovisional application and disclose the named inventor's invention claimed in at least one claim of the later filed nonprovisional application in the manner provided by the first paragraph of 35 U.S.C. § 112. Each prior application must also be:

(i) An international application entitled to a filing date in accordance with PCT Article 11 and designating the United States of America; or

(ii) Complete as set forth in § 1.51(b); or

(iii) Entitled to a filing date as set forth in § 1.53(b) or § 1.53(d) and include the basic filing fee set forth in § 1.16; or

(iv) Entitled to a filing date as set forth in § 1.53(b) and have paid therein the processing and retention fee set forth in § 1.21(f) within the time period set forth in § 1.53(f).

37 C.F.R. § 1.78(a)(1).

NOTE: If the new application being transmitted is a divisional, continuation or a continuation-in-part of a parent case, or where the parent case is an International Application which designated the U.S., or benefit of a prior provisional application is claimed, then check the following item and complete and attach **ADDED PAGES FOR NEW APPLICATION TRANSMITTAL WHERE BENEFIT OF PRIOR U.S. APPLICATION(S) CLAIMED**.

WARNING: If an application claims the benefit of the filing date of an earlier filed application under 35 U.S.C. §§ 120, 121 or 365(c), the 20-year term of that application will be based upon the filing date of the earliest U.S. application that the application makes reference to under 35 U.S.C. §§ 120, 121 or 365(c). (35 U.S.C. § 154(a)(2) does not take into account, for the determination of the patent term, any application on which priority is claimed under 35 U.S.C. §§ 119, 365(a) or 365(b).) For a c-i-p application, applicant should review whether any claim in the patent that will issue is supported by an earlier application and, if not, the applicant should consider canceling the reference to the earlier filed application. The term of a patent is not based on a claim-by-claim approach. See Notice of April 14, 1995, 60 Fed. Reg. 20,195, at 20,205.

(New Application Transmittal [4-1]—page 2 of 11)

WARNING: When the last day of pendency of a provisional application falls on a Saturday, Sunday, or Federal holiday within the District of Columbia, any nonprovisional application claiming benefit of the provisional application must be filed prior to the Saturday, Sunday, or Federal holiday within the District of Columbia. See 37 C.F.R. § 1.78(a)(3).

- ☐ The new application being transmitted claims the benefit of prior U.S. application(s). Enclosed are ADDED PAGES FOR NEW APPLICATION TRANSMITTAL WHERE BENEFIT OF PRIOR U.S. APPLICATION(S) CLAIMED.

3. Papers Enclosed

A. Required for filing date under 37 C.F.R. § 1.53(b) (Regular) or 37 C.F.R. § 1.153 (Design) Application

15 Pages of specification

8 Pages of claims

6 Sheets of drawing

WARNING: DO NOT submit original drawings. A high quality copy of the drawings should be supplied when filing a patent application. The drawings that are submitted to the Office must be on strong, white, smooth, and non-shiny paper and meet the standards according to § 1.84. If corrections to the drawings are necessary, they should be made to the original drawing and a high-quality copy of the corrected original drawing then submitted to the Office. Only one copy is required or desired. For comments on proposed then-new 37 C.F.R. § 1.84, see Notice of March 9, 1988 (1990 O.G. 57-62).

NOTE: "Identifying indicia, if provided, should include the application number or the title of the invention, inventor's name, docket number (if any), and the name and telephone number of a person to call if the Office is unable to match the drawings to the proper application. This information should be placed on the back of each sheet of drawing a minimum distance of 1.5 cm. (5/8 inch) down from the top of the page . . ." 37 C.F.R. § 1.84(c)).

(complete the following, if applicable)

- ☐ The enclosed drawing(s) are photograph(s), and there is also attached a "PETITION TO ACCEPT PHOTOGRAPH(S) AS DRAWING(S)." 37 C.F.R. § 1.84(b).
- ☐ formal
- ☒ informal

B. Other Papers Enclosed

8 Pages of declaration and power of attorney

2 Pages of abstract

 Other

4. Additional papers enclosed

- ☐ Amendment to claims
- ☐ Cancel in this applications claims _____ before calculating the filing fee. (At least one original independent claim must be retained for filing purposes.)
- ☐ Add the claims shown on the attached amendment. (Claims added have been numbered consecutively following the highest numbered original claims.)
- ☐ Preliminary Amendment
- ☐ Information Disclosure Statement (37 C.F.R. § 1.98)
- ☐ Form PTO-1449 (PTO/SB/08A and 08B)
- ☐ Citations

- ☐ Declaration of Biological Deposit
- ☐ Submission of "Sequence Listing," computer readable copy and/or amendment pertaining thereto for biotechnology invention containing nucleotide and/or amino acid sequence.
- ☐ Authorization of Attorney(s) to Accept and Follow Instructions from Representative
- ☐ Special Comments
- ☐ Other

5. Declaration or oath (including power of attorney)

NOTE: A newly executed declaration is not required in a continuation or divisional application provided that the prior nonprovisional application contained a declaration as required, the application being filed is by all or fewer than all the inventors named in the prior application, there is no new matter in the application being filed, and a copy of the executed declaration filed in the prior application (showing the signature or an indication thereon that it was signed) is submitted. The copy must be accompanied by a statement requesting deletion of the names of person(s) who are not inventors of the application being filed. If the declaration in the prior application was filed under § 1.47, then a copy of that declaration must be filed accompanied by a copy of the decision granting § 1.47 status or, if a nonsigning person under § 1.47 has subsequently joined in a prior application, then a copy of the subsequently executed declaration must be filed. See 37 C.F.R. §§ 1.63(d)(1)-(3).

NOTE: A declaration filed to complete an application must be executed, identify the specification to which it is directed, identify each inventor by full name including family name and at least one given name, without abbreviation together with any other given name or initial, and the residence, post office address and country or citizenship of each inventor, and state whether the inventor is a sole or joint inventor. 37 C.F.R. § 1.63(a)(1)-(4).

☒ Enclosed

Executed by

(check all applicable boxes)

- ☐ inventor(s).
- ☐ legal representative of inventor(s).
37 C.F.R. §§ 1.42 or 1.43.
- ☐ joint inventor or person showing a proprietary interest on behalf of inventor who refused to sign or cannot be reached.
- ☐ This is the petition required by 37 C.F.R. § 1.47 and the statement required by 37 C.F.R. § 1.47 is also attached. See item 13 below for fee.

☐ Not Enclosed.

NOTE: Where the filing is a completion in the U.S. of an International Application or where the completion of the U.S. application contains subject matter in addition to the International Application, the application may be treated as a continuation or continuation-in-part, as the case may be, utilizing ADDED PAGE FOR NEW APPLICATION TRANSMITTAL WHERE BENEFIT OF PRIOR U.S. APPLICATION CLAIMED.

- ☐ Application is made by a person authorized under 37 C.F.R. § 1.41(c) on behalf of all the above named inventor(s).

(The declaration or oath, along with the surcharge required by 37 C.F.R. § 1.16(e) can be filed subsequently).

- ☐ Showing that the filing is authorized.
(not required unless called into question. 37 C.F.R. § 1.41(d))

(New Application Transmittal [4-1]—page 4 of 11)

6. Inventorship Statement

WARNING: If the named inventors are each not the inventors of all the claims an explanation, including the ownership of the various claims at the time the last claimed invention was made, should be submitted.

The inventorship for all the claims in this application are:

☐ The same.

or

☐ Not the same. An explanation, including the ownership of the various claims at the time the last claimed invention was made,

☐ is submitted.

☐ will be submitted.

7. Language

NOTE: An application including a signed oath or declaration may be filed in a language other than English. An English translation of the non-English language application and the processing fee of \$130.00 required by 37 C.F.R. § 1.17(k) is required to be filed with the application, or within such time as may be set by the Office. 37 C.F.R. § 1.52(d).

☒ English

☐ Non-English

☐ The attached translation includes a statement that the translation is accurate. 37 C.F.R. § 1.52(d).

8. Assignment

☒ An assignment of the invention to National Label Company

☐ is attached. A separate ☐ "COVER SHEET FOR ASSIGNMENT (DOCUMENT) ACCOMPANYING NEW PATENT APPLICATION" or ☐ FORM PTO 1595 is also attached.

☒ will follow.

NOTE: "If an assignment is submitted with a new application, send two separate letters—one for the application and one for the assignment." Notice of May 4, 1990 (1114 O.G. 77-78).

WARNING: A newly executed "CERTIFICATE UNDER 37 C.F.R. § 3.73(b)" must be filed when a continuation-in-part application is filed by an assignee. Notice of April 30, 1993, 1150 O.G. 62-64.

(New Application Transmittal [4-1]—page 5 of 11)

9. Certified Copy

Certified copy(ies) of application(s)

Country	Appln. No.	Filed
Country	Appln. No.	Filed
Country	Appln. No.	Filed

from which priority is claimed

☐ is (are) attached.

☐ will follow.

NOTE: The foreign application forming the basis for the claim for priority must be referred to in the oath or declaration. 37 C.F.R. § 1.55(a) and 1.63.

NOTE: This item is for any foreign priority for which the application being filed directly relates. If any parent U.S. application or International Application from which this application claims benefit under 35 U.S.C. § 120 is itself entitled to priority from a prior foreign application, then complete item 18 on the ADDED PAGES FOR NEW APPLICATION TRANSMITTAL WHERE BENEFIT OF PRIOR U.S. APPLICATION(S) CLAIMED.

10. Fee Calculation (37 C.F.R. § 1.16)

A. ☒ Regular application

CLAIMS AS FILED					
Number filed		Number Extra	Rate		Basic Fee 37 C.F.R. § 1.16(a) \$760.00
Total Claims (37 C.F.R. § 1.16(c))	59	- 20 = 39	×	\$ 18.00	702.00
Independent Claims (37 C.F.R. § 1.16(b))	6	- 3 = 3	×	\$ 78.00	234.00
Multiple dependent claim(s), if any (37 C.F.R. § 1.16(d))			+	\$260.00	

☐ Amendment cancelling extra claims is enclosed.

☐ Amendment deleting multiple-dependencies is enclosed.

☐ Fee for extra claims is not being paid at this time.

NOTE: If the fees for extra claims are not paid on filing they must be paid or the claims cancelled by amendment, prior to the expiration of the time period set for response by the Patent and Trademark Office in any notice of fee deficiency. 37 C.F.R. § 1.16(d).

Filing Fee Calculation \$ 1,696.00

B. ☐ Design application
(\$310.00—37 C.F.R. § 1.16(f))

Filing Fee Calculation \$

C. ☐ Plant application
(\$480.00—37 C.F.R. § 1.16(g))

Filing fee calculation \$

11. Small Entity Statement(s)

- ☒ Statement(s) that this is a filing by a small entity under 37 C.F.R. § 1.9 and 1.27 is (are) attached.

WARNING: "Status as a small entity must be specifically established in each application or patent in which the status is available and desired. Status as a small entity in one application or patent does not affect any other application or patent, including applications or patents which are directly or indirectly dependent upon the application or patent in which the status has been established. The refiling of an application under § 1.53 as a continuation, division, or continuation-in-part (including a continued prosecution application under § 1.53(d)), or the filing of a reissue application requires a new determination as to continued entitlement to small entity status for the continuing or reissue application. A nonprovisional application claiming benefit under 35 U.S.C. § 119(e), 120, 121, or 365(c) of a prior application, or a reissue application may rely on a statement filed in the prior application or in the patent if the nonprovisional application or the reissue application includes a reference to the statement in the prior application or in the patent or includes a copy of the statement in the prior application or in the patent and status as a small entity is still proper and desired. The payment of the small entity basic statutory filing fee will be treated as such a reference for purposes of this section." 37 C.F.R. § 1.28(a)(2).

WARNING: "Small entity status must not be established when the person or persons signing the . . . statement can unequivocally make the required self-certification." M.P.E.P., § 509.03, 6th ed., rev. 2, July 1996 (emphasis added).

(complete the following, if applicable)

- ☐ Status as a small entity was claimed in prior application

_____ / _____, filed on _____, from which benefit is being claimed for this application under:

- 35 U.S.C. § ☐ 119(e),
☐ 120,
☐ 121,
☐ 365(c),

and which status as a small entity is still proper and desired.

- ☐ A copy of the statement in the prior application is included.

Filing Fee Calculation (50% of A, B or C above)

\$ 848.00

NOTE: Any excess of the full fee paid will be refunded if small entity status is established and a refund request are filed within 2 months of the date of timely payment of a full fee. The two-month period is not extendable under § 1.136, 37 C.F.R. § 1.28(a).

12. Request for International-Type Search (37 C.F.R. § 1.104(d))

(complete, if applicable)

- ☐ Please prepare an international-type search report for this application at the time when national examination on the merits takes place.

13. Fee Payment Being Made at This Time

☐ Not Enclosed

☐ No filing fee is to be paid at this time.

(This and the surcharge required by 37 C.F.R. § 1.16(e) can be paid subsequently.)

☒ Enclosed

☒ Filing fee

\$ 848.00

☐ Recording assignment

(\$40.00; 37 C.F.R. § 1.21(h))

(See attached "COVER SHEET FOR
ASSIGNMENT ACCOMPANYING NEW
APPLICATION".)

\$ _____

☐ Petition fee for filing by other than all the
inventors or person on behalf of the inventor
where inventor refused to sign or cannot be
reached

(\$130.00; 37 C.F.R. §§ 1.47 and 1.17(i))

\$ _____

☐ For processing an application with a
specification in

a non-English language

(\$130.00; 37 C.F.R. §§ 1.52(d) and 1.17(k))

\$ _____

☐ Processing and retention fee

(\$130.00; 37 C.F.R. §§ 1.53(d) and 1.21(l))

\$ _____

☐ Fee for international-type search report

(\$40.00; 37 C.F.R. § 1.21(e))

\$ _____

NOTE: 37 C.F.R. § 1.21(l) establishes a fee for processing and retaining any application that is abandoned for failing to complete the application pursuant to 37 C.F.R. § 1.53(f) and this, as well as the changes to 37 C.F.R. §§ 1.53 and 1.78(a)(1), indicate that in order to obtain the benefit of a prior U.S. application, either the basic filing fee must be paid, or the processing and retention fee of § 1.21(l) must be paid, within 1 year from notification under § 53(f).

Total fees enclosed

\$ 848.00

14. Method of Payment of Fees

☒ Check in the amount of \$ 848.00

☐ Charge Account No. _____ in the amount of
\$ _____

A duplicate of this transmittal is attached.

NOTE: Fees should be itemized in such a manner that it is clear for which purpose the fees are paid. 37 C.F.R. § 1.22(b).

15. Authorization to Charge Additional Fees

WARNING: If no fees are to be paid on filing, the following items should not be completed.

WARNING: Accurately count claims, especially multiple dependent claims, to avoid unexpected high charges, if extra claim charges are authorized.

- ☒ The Commissioner is hereby authorized to charge the following additional fees by this paper and during the entire pendency of this application to Account No. 18-0586:

☒ 37 C.F.R. § 1.16(a), (f) or (g) (filing fees)

☒ 37 C.F.R. § 1.16(b), (c) and (d) (presentation of extra claims)

NOTE: Because additional fees for excess or multiple dependent claims not paid on filing or on later presentation must only be paid or these claims cancelled by amendment prior to the expiration of the time period set for response by the PTO in any notice of fee deficiency (37 C.F.R. § 1.16(d)), it might be best not to authorize the PTO to charge additional claim fees, except possibly when dealing with amendments after final action.

☒ 37 C.F.R. § 1.16(e) (surcharge for filing the basic filing fee and/or declaration on a date later than the filing date of the application)

☒ 37 C.F.R. § 1.17(a)(1)-(5) (extension fees pursuant to § 1.136(a)).

☒ 37 C.F.R. § 1.17 (application processing fees)

NOTE: ". . . A written request may be submitted in an application that is an authorization to treat any concurrent or future reply, requiring a petition for an extension of time under this paragraph for its timely submission, as incorporating a petition for extension of time for the appropriate length of time. An authorization to charge all required fees, fees under § 1.17, or all required extension of time fees will be treated as a constructive petition for an extension of time in any concurrent or future reply requiring a petition for an extension of time under this paragraph for its timely submission. Submission of the fee set forth in § 1.17(a) will also be treated as a constructive petition for an extension of time in any concurrent reply requiring a petition for an extension of time under this paragraph for its timely submission." 37 C.F.R. § 1.136(a)(3).

☐ 37 C.F.R. § 1.18 (issue fee at or before mailing of Notice of Allowance, pursuant to 37 C.F.R. § 1.311(b))

NOTE: Where an authorization to charge the issue fee to a deposit account has been filed before the mailing of a Notice of Allowance, the issue fee will be automatically charged to the deposit account at the time of mailing the notice of allowance. 37 C.F.R. § 1.311(b).

NOTE: 37 C.F.R. § 1.28(b) requires "Notification of any change in status resulting in loss of entitlement to small entity status must be filed in the application . . . prior to paying, or at the time of paying, . . . the issue fee. . . ." From the wording of 37 C.F.R. § 1.28(b), (a) notification of change of status must be made even if the fee is paid as "other than a small entity" and (b) no notification is required if the change is to another small entity.

16. Instructions as to Overpayment

NOTE: "... Amounts of twenty-five dollars or less will not be returned unless specifically requested within a reasonable time, nor will the payer be notified of such amounts; amounts over twenty-five dollars may be returned by check or, if requested, by credit to a deposit account." 37 C.F.R. § 1.26(a).

- ☒ Credit Account No. 18-0586
- ☐ Refund

Reg. No. 34,828

Tel. No. (215) 851-8100

Customer No.



SIGNATURE OF PRACTITIONER

John W. Goldschmidt, Jr.

(type or print name of attorney)

Reed Smith Shaw & McClay LLP

2500 One Liberty Place, 1650 Market Street

P.O. Address

Philadelphia, PA 19103-7301

☐ **Incorporation by reference of added pages**

(check the following item if the application in this transmittal claims the benefit of prior U.S. application(s) (including an international application entering the U.S. stage as a continuation, divisional or C-I-P application) and complete and attach the ADDED PAGES FOR NEW APPLICATION TRANSMITTAL WHERE BENEFIT OF PRIOR U.S. APPLICATION(S) CLAIMED)

☒ Plus Added Pages for New Application Transmittal Where Benefit of Prior U.S. Application(s) Claimed

Number of pages added 5

☐ Plus Added Pages for Papers Referred to in Item 4 Above

Number of pages added _____

☐ Plus added pages deleting names of inventor(s) named in prior application(s) who is/are no longer inventor(s) of the subject matter claimed in this application.

Number of pages added _____

☐ Plus "Assignment Cover Letter Accompanying New Application"

Number of pages added _____

☐ **Statement Where No Further Pages Added**

(if no further pages form a part of this Transmittal, then end this Transmittal with this page and check the following item)

☐ This transmittal ends with this page.

Practitioner's Docket No. 99-40132-US

PATENT

ADDED PAGES FOR APPLICATION TRANSMITTAL WHERE BENEFIT OF
PRIOR U.S. APPLICATION(S) CLAIMED

NOTE: See 37 C.F.R. § 1.78.

17. Relate Back

WARNING: If an application claims the benefit of the filing date of an earlier filed application under 35 U.S.C. §§ 120, 121 or 365(c), the 20-year term of that application will be based upon the filing date of the earliest U.S. application that the application makes reference to under 35 U.S.C. §§ 120, 121 or 365(c). (35 U.S.C. § 154(a)(2) does not take into account, for the determination of the patent term, any application on which priority is claimed under 35 U.S.C. §§ 119, 365(a) or 365(b).) For a c-i-p application, applicant should review whether any claim in the patent that will issue is supported by an earlier application and, if not, the applicant should consider canceling the reference to the earlier filed application. The term of a patent is not based on a claim-by-claim approach. See Notice of April 14, 1995, 60 Fed. Reg. 20,195, at 20,205.

(complete the following, if applicable)

☒ Amend the specification by inserting, before the first line, the following sentence:

A. 35 U.S.C. § 119(e)

NOTE: "Any nonprovisional application claiming the benefit of one or more prior filed copending provisional applications must contain or be amended to contain in the first sentence of the specification following the title a reference to each such prior provisional application, identifying it as a provisional application, and including the provisional application number (consisting of series code and serial number)." 37 C.F.R. § 1.78(a)(4).

☒ "This application claims the benefit of U.S. Provisional Application(s) No(s).:

APPLICATION NO(S):

FILING DATE

60 / 125,847

3/24/99

B. 35 U.S.C. §§ 120, 121 and 365(c)

NOTE: "Except for a continued prosecution application filed under § 1.53(d), any nonprovisional application claiming the benefit of one or more prior filed copending nonprovisional applications or international applications designating the United States of America must contain or be amended to contain in the first sentence of the specification following the title a reference to each such prior application, identifying it by application number (consisting of the series code and serial number) or international application number and international filing date and indicating the relationship of the applications. . . . Cross-references to other related applications may be made when appropriate." (See § 1.14(a)). 37 C.F.R. § 1.78(a)(2).

☐ "This application is a

☐ continuation

☐ continuation-in-part

☐ divisional

of copending application(s)

☐ application number 0 / _____ filed on _____"

☐ International Application _____ filed on

_____ and which designated the U.S."

NOTE: The proper reference to a prior filed PCT application that entered the U.S. national phase is the U.S. serial number and the filing date of the PCT application that designated the U.S.

NOTE: (1) Where the application being transmitted adds subject matter to the International Application, then the filing can be as a continuation-in-part or (2) if it is desired to do so for other reasons then the filing can be as a continuation.

NOTE: The deadline for entering the national phase in the U.S. for an international application was clarified in the Notice of April 28, 1987 (1079 O.G. 32 to 46) as follows:

"The Patent and Trademark Office considers the International application to be pending until the 22nd month from the priority date if the United States has been designated and no Demand for International Preliminary Examination has been filed prior to the expiration of the 19th month from the priority date and until the 32nd month from the priority date if a Demand for International Preliminary Examination which elected the United States of America has been filed prior to the expiration of the 19th month from the priority date, provided that a copy of the international application has been communicated to the Patent and Trademark Office within the 20 or 30 month period respectively. If a copy of the international application has not been communicated to the Patent and Trademark Office within the 20 or 30 month period respectively, the international application becomes abandoned as to the United States 20 or 30 months from the priority date respectively. These periods have been placed in the rules as paragraph (h) of § 1.494 and paragraph (i) of § 1.495. A continuing application under 35 U.S.C. 365(c) and 120 may be filed anytime during the pendency of the international application."

☐ "The nonprovisional application designated above, namely application

_____ / _____, filed _____, claims the benefit of U.S. Provisional Application(s) No(s):

APPLICATION NO(S):

FILING DATE

_____ / _____

_____ "

_____ / _____

_____ "

_____ / _____

_____ "

☐ Where more than one reference is made above, please combine all references into one sentence.

18. Relate Back—35 U.S.C. § 119 Priority Claim for Prior Application

The prior U.S. application(s), including any prior International Application designating the U.S., identified above in item 17B, in turn itself claim(s) foreign priority(ies) as follows:

Country	Appln. no.	Filed on
---------	------------	----------

The certified copy(ies) has (have)

- ☐ been filed on _____, in prior application 0 / _____, which was filed on _____
- ☐ is (are) attached.

WARNING: The certified copy of the priority application that may have been communicated to the PTO by the International Bureau may not be relied on without any need to file a certified copy of the priority application in the continuing application. This is so because the certified copy of the priority application communicated by the International Bureau is placed in a folder and is not assigned a U.S. serial number unless the national stage is entered. Such folders are disposed of if the national stage is not entered. Therefore, such certified copies may not be available if needed later in the prosecution of a continuing application. An alternative would be to physically remove the priority documents from the folders and transfer them to the continuing application. The resources required to request transfer, retrieve the folders, make suitable record notations, transfer the certified copies, enter and make a record of such copies in the Continuing Application are substantial. Accordingly, the priority documents in folders of international applications that have not entered the national stage may not be relied on. Notice of April 28, 1987 (1079 O.G. 32 to 46).

19. Maintenance of Copendency of Prior Application

NOTE: The PTO finds it useful if a copy of the petition filed in the prior application extending the term for response is filed with the papers constituting the filing of the continuation application. Notice of November 5, 1985 (1060 O.G. 27).

A. ☐ Extension of time in prior application

(This item must be completed and the papers filed in the prior application, if the period set in the prior application has run.)

- ☐ A petition, fee and response extends the term in the pending prior application until _____
- ☐ A copy of the petition filed in prior application is attached:

B. ☐ Conditional Petition for Extension of Time in Prior Application

(complete this item, if previous item not applicable)

- ☐ A conditional petition for extension of time is being filed in the pending prior application.
- ☐ A copy of the conditional petition filed in the prior application is attached.

20. Further Inventorship Statement Where Benefit of Prior Application(s) Claimed

(complete applicable item (a), (b) and/or (c) below)

- (a) ☐ This application discloses and claims only subject matter disclosed in the prior application whose particulars are set out above and the inventor(s) in this application are
- ☐ the same.
 - ☐ less than those named in the prior application. It is requested that the following inventor(s) identified for the prior application be deleted:

(type name(s) of inventor(s) to be deleted)

- (b) ☐ This application discloses and claims additional disclosure by amendment and a new declaration or oath is being filed. With respect to the prior application, the inventor(s) in this application are
- ☐ the same.
 - ☐ the following additional inventor(s) have been added:

(type name(s) of inventor(s) to be added)

- (c) The inventorship for all the claims in this application are
- ☐ the same.
 - ☒ not the same. An explanation, including the ownership of the various claims at the time the last claimed invention was made
 - ☐ is submitted.
 - ☐ will be submitted.

21. Abandonment of Prior Application (if applicable)

- ☐ Please abandon the prior application at a time while the prior application is pending, or when the petition for extension of time or to revive in that application is granted, and when this application is granted a filing date, so as to make this application copending with said prior application.

NOTE: According to the Notice of May 13, 1983 (103, TMOG 6-7), the filing of a continuation or continuation-in-part application is a proper response with respect to a petition for extension of time or a petition to revive and should include the express abandonment of the prior application conditioned upon the granting of the petition and the granting of a filing date to the continuing application.

22. Petition for Suspension of Prosecution for the Time Necessary to File an Amendment

WARNING: "The claims of a new application may be finally rejected in the first Office action in those situations where (A) the new application is a continuing application of, or a substitute for, an earlier application, and (B) all the claims of the new application (1) are drawn to the same invention claimed in the earlier application, and (2) would have been properly finally rejected on the grounds of art of record in the next Office action if they had been entered in the earlier application." M.P.E.P., § 706.07(b), 7th ed.

NOTE: Where it is possible that the claims on file will give rise to a first action final for this continuation application and for some reason an amendment cannot be filed promptly (e.g., experimental data is being gathered) it may be desirable to file a petition for suspension of prosecution for the time necessary.

(check the next item, if applicable)

- ☐ There is provided herewith a Petition To Suspend Prosecution for the Time Necessary to File An Amendment (New Application Filed Concurrently)

23. Small Entity (37 C.F.R. § 1.28(a))

- ☐ Applicant has established small entity status by the filing of a statement in parent application /_____ on _____.
- ☐ A copy of the statement previously filed is included.

WARNING: See 37 C.F.R. § 1.28(a).

WARNING: "Small entity status must not be established when the person or persons signing the . . . statement can unequivocally make the required self-certification." M.P.E.P., § 509.03, 7th ed. (emphasis added).

24. NOTIFICATION IN PARENT APPLICATION OF THIS FILING

- ☐ A notification of the filing of this
(check one of the following)
- ☐ continuation
 - ☐ continuation-in-part
 - ☐ divisional

is being filed in the parent application, from which this application claims priority under 35 U.S.C. § 120.

(Added Pages for Application Transmittal Where Benefit of Prior U.S. Application(s) Claimed
[4-1.1]—page 5 of 5)

668020" 2264E60

☐ Applicant Dean R. Shacklett et al. ☐ Patentee _____
☐ Application No. _____ ☐ Patent No. _____
☐ Filed on _____ ☐ Issued on _____
Title: FABRIC PADS WITH A PRINTED DESIGN AND A METHOD FOR MAKING FABRIC PADS WITH A PRINTED DESIGN

**STATEMENT CLAIMING SMALL ENTITY STATUS
(37 CFR 1.9(f) and 1.27(c))—SMALL BUSINESS CONCERN**

I hereby state that I am

- ☐ the owner of the small business concern identified below:
☒ an official of the small business concern empowered to act on behalf of the concern identified below:

Name of Small Business Concern National Label Company
Address of Small Business Concern 2025 Joshua Road
Lafayette Hill, PA 19444

I hereby state that the above identified small business concern qualifies as a small business concern, as defined in 13 CFR 121.12, and reproduced in 37 CFR 1.9(d), for purposes of paying reduced fees to the United States Patent and Trademark Office under Sections 41(a) and (b) of Title 35, United States Code, in that the number of employees of the concern, including those of its affiliates, does not exceed 500 persons. For purposes of this statement, (1) the number of employees of the business concern is the average over the previous fiscal year of the concern of the persons employed on a full-time, part-time or temporary basis during each of the pay periods of the fiscal year, and (2) concerns are affiliates of each other when either, directly or indirectly, one concern controls or has the power to control the other, or a third-party or parties controls or has the power to control both.

I hereby state that rights under contract or law have been conveyed to, and remain with, the small business concern identified above, with regard to the invention described in

- ☒ the specification filed herewith, with title as listed above.
☐ the application identified above.
☐ the patent identified above.

If the rights held by the above-identified small business concern are not exclusive, each individual, concern or organization having rights in the invention is listed below* and no rights to the invention are held by any person, other than the inventor, who would not qualify as an independent inventor under 37 CFR 1.9(c), if that person made the invention, or by any concern which would not qualify as a small business concern under 37 CFR 1.9(d) or a nonprofit organization under 37 CFR 1.9(e).

*NOTE: Separate statements are required from each named person, concern or organization having rights to the invention as to their status as small entities. (37 CFR 1.27)

Each such person, concern or organization having any rights in the invention is listed below:

- ☒ No such person, concern, or organization exists.
☐ Each such person, concern or organization is listed below.

Name _____

Address _____

☐ INDIVIDUAL ☐ SMALL BUSINESS CONCERN ☐ NONPROFIT ORGANIZATION

Name _____

Address _____

☐ INDIVIDUAL ☐ SMALL BUSINESS CONCERN ☐ NONPROFIT ORGANIZATION

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small business entity is no longer appropriate. (37 CFR 1.28(b))

(check the following item, if desired)

NOTE: The following verification statement need not be made in accordance with the rules published on Oct. 10, 1997, 62 Fed. Reg. 52,131, effective Dec. 1, 1997.

NOTE: "The presentation to the Office (whether by signing, filing, submitting, or later advocating) of any paper by a party, whether a practitioner or non-practitioner, constitutes a certification under § 10.18(b) of this chapter. Violations of § 10.18(b)(2) of this chapter by a party, whether a practitioner or non-practitioner, may result in the imposition of sanctions under § 10.18(c) of this chapter. Any practitioner violating § 10.18(b) may also be subject to disciplinary action. See §§ 10.18(d) and 10.23(c)(15)." 37 C.F.R. § 1.4(d)(2).

☒ I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

Name of Person Signing Dean R. Shacklett

Title of Person if Other Than Owner Chief Operating Officer

Address of Person Signing c/o National Label Company
2025 Joshua Road, Lafayette Hill, PA 19444

SIGNATURE _____

Date _____

**FABRIC PADS WITH A PRINTED DESIGN AND
A METHOD OF MAKING FABRIC PADS WITH A PRINTED DESIGN**

BACKGROUND OF THE INVENTION

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Field of the Invention

The present invention is directed generally to fabric pads for the application of liquid products and a method for producing fabric pads, and, more particularly, to fabric pads with a printed design thereon and a method of making fabric pads with a printed design thereon.

Background

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Fabric pads are commonly used as carriers and applicators for various liquid products, especially cleaning products, therapeutic products, dermatological products and the like. Such pads are typically packaged in containers with the liquid product, such that the pads absorb the liquid product. A user opens the container and removes one or more of the pads and applies the liquid product using the pads. Typically, product labeling, branding, design, or other trade dress features for such products are placed on the container containing the pads. The pads themselves generally carry no identifying indicia or design elements. The pads themselves infrequently display printed matter due to the substantial technical difficulty in printing on and otherwise processing such materials, particularly the low elastic deformation threshold of such materials. These difficulties are particularly acute in situations where it is desirable to print and maintain specific shapes on the pad, and in situations where printing is desired on both surfaces of the pads in substantial registration. In addition, where the products are intended for dermatological or other medical uses, any inks, including the vehicles and pigments must be approved by any relevant regulatory agencies, which substantially limits the types of inks that

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can be used. Finally, in any such application, it is important that there be little or no leaching of the inks into the product solution.

Therefore, the need exists for non-leaching printed pads which may be printed on both sides in register, and methods for making such pads.

5 SUMMARY OF THE INVENTION

The present invention is directed to a pad for carrying liquid comprising a piece of non-woven material wherein the piece of material is capable of absorbing an amount of the liquid at least about 1.5 times the weight of the piece of material, a first printed ink on a first surface of the material, and a second printed ink on either the first or a second surface of the material, and wherein the first ink is substantially in register with the second ink.

The present invention is also directed to a method for making a printed pad for carrying a liquid comprising the steps of feeding a web of non-woven material into a rotogravure press, wherein the material is capable of absorbing at least about 1.5 times its own weight of the liquid, printing a first ink with the press on a first surface of the web, printing a second ink with the press substantially in register with the first ink on the first surface or a second surface of the web.

The present invention is also directed to a system for cutting printed designs from a web of elastic material to form printed pads wherein the printed designs are printed on the web at a repeat length having a braked unwind station having a variable braking tension, an infeed station having an adjustable speed, a diecutter having a diecutting cylinder and a cylinder correction gearbox capable of correcting the position of the diecutting cylinder in a positive or negative rotational direction, wherein the circumference of the diecutting cylinder is greater than

the repeat length, a first sensor for sensing the position of the printed designs on the web, a second sensor for sensing the position of the diecutting cylinder, a processor electronically coupled to the first sensor, the second sensor, the infeed station and the diecutter for controlling the infeed station and the diecutter in response to signals received from the sensors, wherein the processor sends a correction signal to the diecutting cylinder in response to signals from the sensors, the processor comprises a first counter for counting the number of consecutive corrections of the diecutting cylinder in the same direction and sending a correction signal to the infeed station when a predetermined number of consecutive corrections of the diecutting cylinder is reached.

In short, the invention is directed to a printed pad made from an absorbent material, wherein the pad comprises a printed design comprising at least two inks printed in substantial register. The inks may be printed on the same or on opposite surfaces of the material. The pads may be diecut into any desired shape also in register with the printed design(s). In addition, the invention is directed to a method for making said printed pads. Because the pad material typically has a low threshold of plastic deformation, it is difficult to produce pads having inks printed in register, particularly on both surfaces of the material. For this reason as well, it is also difficult to produce pads having a consistent size and shape. The methods of the present invention overcome these and other difficulties.

BRIEF DESCRIPTION OF THE DRAWINGS

Other objects, features and advantages of the present invention will become more fully apparent from the following detailed description of the preferred embodiments, the appended claims and the accompanying drawings in which:

Figure 1 is a perspective view of a printed pad in accordance with the present invention;

Figure 2 is a top view of a portion of web of material from which the printed pads of the present invention are formed;

Figure 3 is a schematic view of a print system for printing a pad in accordance with the present invention;

Figure 4 is a schematic top view of a system for cutting and stacking printed pads in accordance with the present invention;

Figure 5 is a schematic representation of a rotogravure print cylinder for use in a system in accordance with the present invention; and

Figure 6 is a schematic side view of the system of Figure 4.

DETAILED DESCRIPTION OF THE INVENTION

Printed Pads

The present invention is directed to a printed pad 100 as shown in Figure 1. The printed pad 100 comprises the pad material 101 having a top surface 103, a bottom surface 105, a thickness 109, and a design 107 comprising one or more inks. Optionally an identical design 107 may be printed on both surfaces 103 and 105 of the pad 101 and further may be printed in substantial registration on both sides 103 and 105. In a preferred embodiment, the pad 100 resembles a cross-section of material, such as a slice of cucumber. The materials and inks employed to make the printed pads 100 will be described in further detail below in describing the systems and methods for making the printed pads 100.

Referring now to Figure 2 there is shown a portion of a web 200 of the material 101 from which the printed pads 100 of the present invention may be formed. The web 200 has a

top surface 203, a bottom surface 205 and a thickness 109. The material 101 selected for the web 200 may vary depending upon the intended use of the liquid products. There are at least two sets of criteria employed in selecting a suitable web material 101. The first set of criteria includes functional properties relating to the web material's 101 suitability for its intended use, including, for example, the ability to absorb liquid, texture, feel and appearance. The second set of criteria includes functional properties relating the suitability of the web material 101 for printing, including, for example, density, transference (that is, the capacity for ink to be transferred to it from the printer), tensile strength, and overall printability. In the preferred embodiment of the present invention, the thickness 109 of web material is in the range between 30 and 50 mils.

In a preferred embodiment of the present invention, the web material 101 is a non-woven polyester with a minimum density of about 2.5 oz./yd² and a minimum tensile strength of about 30 lbs./in. Preferably, the web 200 is of a type equivalent to or substantially similar to SONTARA fabric type number S-8100 4.05 oz/yd² made by DuPont Inc. Other suitable fabrics include, without limitation: 100% non-woven polyesters MIRATEC #2554, #2556, #2557 available from PGI Nonwovens; Product no. A0168/23102 (a 45% polyester/55% cellulose blend) available from Dexter Corporation; VERATEK #1240.2, #149-616, #140,235 and Reemay #2024, #2033, #2295 available from BBA Non-Wovens Bethune; and #S-8007 available from DuPont.

The designs 107 are formed on the pads 100 with specific inks. One of the principal difficulties solved by the present invention is finding inks that meet certain criteria including, without limitation, the safety and other criteria set forth herein, and that also are effective to print on the preferred web materials. The inks used in the present invention are in

liquid form. Preferably such inks contain no carbon. The inks are preferably solvent based gravure inks. The inks preferably have a viscosity of about 17 to 30 seconds in a #2 Zahn.

The inks generally comprise two components, the vehicle and the pigment.

Suitable vehicle systems include, nitrocellulose, polyamid, vinyl, acrylic, shellac and combinations thereof. Where the pads 100 are intended for dermatological use, as in a preferred embodiment of the present invention, the pigments are preferably approved or allowable by the relevant regulatory agencies and/or statutory or regulatory provisions, including, without limitation the U.S. Food and Drug Administration, California Proposition 65, CONEG compliance. Suitable preferred pigments include, without limitation, pigment blue 15-3, pigment yellow 42 and pigment green 18.

Preferably the inks undergo no visible leaching from the printed pads 100 when placed in contact with the solution used in the final product. Leaching may be evaluated in accordance with the following test:

1. A 10 count of printed pads is placed in a standard packaging jar with cap.
2. 20g, of 10% ethanol (2 g per printed pad) is added to the jar.
3. The jar is sealed and placed in an electrical natural convection oven at 50°C for 24 hours.
4. After 24 hours the jar is removed from the oven and allowed to cool to room temperature (approximately 3 hours).
5. Once cool 2-3 pads are removed from the jar and wrung out into a small clear vial.
6. The vial is examined visually against a white background to detect any visible leached ink.

In a preferred embodiment, the ink must experience no visible leaching when subjected to the foregoing test.

Preferred inks may include the following inks supplied by Colorcon: FGN-2984 clear, FGN-4984 yellow, and FGN-3560 blue. These inks may be mixed to form various inks having desired colors. Preferred ink mixtures comprise about 50% to 80% FGN-2984 clear, about 20% to 50% FGN-4984 yellow, and about 2% to 10% FGN-3560 blue. An alternative preferred ink mixture comprises about 0% to 30% FGN-2984 clear, about 0% to 30% FGN-4984 yellow, and about 70%-100% FGN-5078green. The blended inks are then reduced with acetate and alcohol to the desired viscosity.

Printing System

Referring now to Figure 3, there is shown a schematic view of a system for making a printed pad 100 in accordance with the present invention. The print system preferably comprises a printer or press 300 specifically adapted for printing on the web 200 of material 101.

The printer 300 is preferably a rotogravure press although any printing means capable of printing the inks on the material may be used, including without limitation flexography and flat bed gravure printing. The rotogravure press 300 comprises a plurality of stations through which the web 200 passes. Station 301 is an unwind station where a preferably blank web of material is unwound from a roll or spool.

Station 303 is an automatic splicer which splices the end of a first roll of web material to the end of second roll of web material such that a continuous web may be passed through the press 300 without interruption. With certain materials, such as the DuPont SONTARA fabric, it may be necessary to disable the automatic splicer.

Station 305 comprises festoons which provide a length of web material that may be advanced into subsequent stations of the press if the unwind system is temporarily delayed or slowed by, for example, an automatic splicing operation. The festoons 305 comprises a plurality of adjustably spaced apart rollers. The position of the rollers and, accordingly the tension on the web 200 in the festoons 305, is controlled by pneumatic pressure. In accordance with the present invention, it is preferable to set the festoons 305 with a just enough tension on the web 200 prevent the web 200 from binding in the press 300 from excess slack. In accordance with a preferred embodiment of the present invention, the festoons 305 may be set at about 3 bar.

Station 307 is an infeed station. The infeed station 307 comprises a nip roller or other device for controlling the rate at which the web 200 is fed into the press 300. In a preferred embodiment, the web 200 is run through the press 300 at about 105 to 115 feet per minute. The infeed station 307 also comprises means 306 for controlling the tension on the web 200. In a preferred embodiment, the infeed station 307 comprises a potentiometer and a roller on a dancer to measure and control the tension on the web. The tension on the web at the infeed station is preferably about 12 lbs.

Station 309 is a first print control station. Station 309 comprises a moveable roller 310 adapted to make fine adjustments to the longitudinal position of the web 200 in the first print station 311. First print station 311 comprises a print cylinder 312 that prints a first ink on the web 200. If it is desired to print the first ink on a specific longitudinal position on the web 200, for example, relative to a preexisting mark on the web 200, first print station 311 may also comprise a first web position sensor 308, such as an optical scanner. At the first print station 311, the first web position sensor 308 may compare the position of the first printed ink to a pre-existing mark on the web 200. If the first ink is not printed in the desired position relative to the

pre-existing mark, the first control station 309 adjusts the longitudinal position of the web 200 such that subsequent applications of the first ink by the print cylinder 312 in the first print station 311 are in the desired position. The first web position sensor 308 may continually sense the longitudinal position of the web 200 and the first control station 309 may continually adjust the longitudinal position of the web 200 in response to the signal from the first web position sensor 308. In a preferred embodiment of the present invention, the web 200 is blank and there is no preexisting mark. As a result, in such an embodiment, there is no web position sensor 308 in the first print station 311 and there is no need for adjustment by the first control station 309. The first control station 309 may also comprise a potentiometer 304 which senses the tension on the web 200. The tension on the web 200 at the first control station 309 is preferably about 15 lbs.

The first print station 311, prints the first ink of the desired design on the top surface 203 of the web 200. The first print station 311 also preferably prints a first web position reference mark 209, (Figure 2) on the top surface 203 of the web 200.

Station 313 is a second print control station. Station 313 is identical to station 309. Station 315 is a second print station that preferably applies a second ink with a second print cylinder 316. Station 315 preferably comprises a second web position sensor 318. The second web position sensor 318 senses the position of the first reference mark 209. Because of the nature of the web material, in a preferred embodiment, the second web position sensor 318 senses the longitudinal position (relative to the web) of the first reference mark 209 and does not sense the lateral position of the web 200. The lateral position of the web 200 may be observed and controlled manually. If the second ink is not printed in the desired longitudinal position relative to the first reference mark 209 and, therefore, the first ink, the second control station 313 adjusts the longitudinal position of the web 200 such that subsequent applications of the second

ink by the print cylinder 316 in the second print station 315 are in the desired position. The second web position sensor 318 may continually sense the position of the web 200 and the second control station 313 may continually adjust the longitudinal position of the web 200 in response to the signal from the second web position sensor 318. The second control station 313 may also comprise a potentiometer 314 which senses the tension on the web 200. The tension on the web 200 at the second control station 313 is preferably about 10-14 lbs.

The second print station 315, prints the second ink of the desired design on the front surface 203 of the web 200. The second print station 315 also preferably prints a second reference mark 211, on the front surface 203 of the web 200.

Station 317 comprises a turn-bar that positions the web 200 for printing on the second surface 205 of the web 200 in subsequent print stations.

Station 319 is a third print control station. Station 321 is a third print station. Stations 319 and 321 may be essentially identical to stations 313 and 315. The web position sensor 324 in print station 321 is positioned to read either the first or the second reference mark, which is printed on the front surface 203 of the web 200. The tension on the web 200 at the third control station 319 is preferably about 10-14 lbs.

The third print station 321, prints the third ink of the desired design on the bottom surface 205 of the web 200. The third print station 321 also preferably prints a third reference mark on the second side bottom surface 205 of the web 200.

Station 323 is a fourth print control station. Station 325 is a fourth print station. Stations 323 and 325 may be essentially identical to stations 313 and 315. The web position sensor in print station 325 is positioned to read either the first, second or third reference mark. The tension on the web at the fourth control station is preferably about 10-14 lbs.

Although not shown, alternative embodiments of the present invention may comprise either fewer or more print control and print stations. Generally, one print control station and one print station are required for each shade or color of ink to be applied to each side of the web.

5 Station 327 is a dryer. The dryer 327 is preferably set at 2.2 Kw (about 50°C). Station 329 is a chill roller which cools the web after passing through the dryer 327. The chill roller 329 station preferably comprises a potentiometer and web tension adjustment means (not shown). The tension on the web at the chill roller 327 is preferably about 5 to 6 lbs., which is about 90% lower than the standard chill roller tension.

Station 330 is a slicer that divides the web 200 along a predetermined line, such as the printed centerline 213, thereby forming a true edge on each of the two halves of the original web. The slicer comprises a blade 332, the position of which is adjustable relative to the web (or the position of the web is adjustable relative to the blade). The slicer further comprises an optical sensor 334 that senses the position of the printing on the web by reading a control mark. The position of the blade (or the web) may be continuously monitored and adjusted to maintain the blade in register with the printing to ensure that the edge formed by the slicer is a true edge

Station 331 is a rewind station comprising means for spooling the two web halves.

Print stations 311, 315, 321, and 325 each comprise a rotogravure print cylinder 312, 316, 322 and 326. Because the web material tends to elongate and narrow during the printing process, progressively larger print cylinders may be employed in the press 300 to help to maintain a carefully controlled tension on the web 200. Thus, each print cylinder is approximately 0.0002 of an inch larger than the previous print cylinder in the press 300. It will

be understood by those skilled in the art that the exact sizes and changes of sizes of the cylinders will vary depending upon the specific web material as well as the press itself. Referring now to Figure 5, there is shown a schematic view of a print cylinder 501 for use in the press 300. The cylinder 501 comprises cells 503 that may be relatively deeply etched to accommodate the fibrous nature of the material. In a preferred embodiment, the cells 503 on the cylinder 501 are about 195 microns wide, about 65-70 microns deep and carry an ink volume 1 1.76 cubic billion microns (cbm).

In a preferred embodiment, the rotogravure press 300 is a Fischer & Kracke rotogravure press set as follows: Unwind brakes on, set at 0; Festoons - 3; Infeed - about 12; Coater #1 - 13 to 15; Chill - 9800 on digital control, load cell shows about 5-10; Gears - 80/80; Outfeed nip on, pressure 2 bar (vacuum off); Rewind pots at 90; LAM tension and outfeed tension vary with size of roll on rewind; Reference correction speeds at 7; AL at 0.5; Speed - 105 to 115 ft./min.

Cutting and Stacking System

Referring now to Figures 4 and 6, there is shown a schematic diagram of a system 400 for cutting and stacking pads in accordance with the present invention from the printed web 200.

The unwind station 401 is preferably a braked rollstand. The unwind station has means to laterally adjust the position of the web 200. The lateral adjustment means may be a laterally adjustable roller, which laterally adjusts the position of the entire web roll, or an offset pivot guide, which adjusts the lateral position of the web after it is unwound from the roll. The lateral adjustment means are in communication with a lateral web position sensor 403. The lateral web position sensor senses the lateral position of the web 200 by sensing a suitable

reference point, such as either the edge of the web or the printed center line 213. The sensor 403 controls the lateral adjustment means of the unwind station 401 to maintain the lateral position of the web, preferably to within about 0.25 mm to about 0.38 mm of the desired lateral position.

A driven infeed unit 405, preferably a nip roller, is positioned downstream of the
5 unwind station 401. The infeed unit 405 pulls the web off of the roll on the unwind station 401 and feeds the web into the diecutter 407. An optical sensor 409 is preferably positioned downstream of the infeed unit and upstream of the diecutter 407.

In order to attain accurate cutting of the web, which has been irregularly stretched during the printing operation, several levels of error correction are preferably employed. The grossest level of error correction is accomplished by adjusting of the braking force on the unwind station 401. The intermediate level of error correction is accomplished by adjusting the speed of the infeed unit 405. The finest level of error correction is accomplished by adjusting the position of the diecutting cylinder 408.

In order for the error correction mechanisms to function, the repeat length of the printed designs on the web is intentionally made shorter than the repeat length of the diecutting cylinder 704. The difference between the repeat length on the diecutting cylinder and the repeat length on the web varies depending upon the elasticity of the web material. For the Dupont Sontara fabric, the repeat length on the diecutting cylinder is preferably about 0.5% greater than the repeat length on the web.

20 The error correction mechanisms are preferably controlled by a processor 451 that receives signals from the optical sensor 409, which reads a reference mark 209 printed on the web, and optical sensor 410, which reads a reference mark on the diecutting cylinder. The diecutter 407 preferably comprises a cylinder correction gearbox, preferably a 360 degree

cylinder correction gearbox. The processor compares the position of the reference mark on the web to the position of the diecutting cylinder and adjusts the position of the diecutting cylinder to correct any detected error. The processor also counts the number of corrections in the same direction. When the count of consecutive corrections in the same direction exceeds a selected threshold, preferably about 4 corrections, the processor 451 adjusts the speed of the infeed unit 405. If the adjustments to the infeed unit speed exceed a predetermined threshold, preferably an amount equal to the difference between the repeat length on the web and the repeat length on the diecutting cylinder, the processor sends a signal to alert an operator to manually adjust the braking tension. Alternatively, the processor may electronically be coupled to the unwind station such that the processor can automatically control the braking tension. This combination of error correction means preferably enables the cutting system to operate at an accuracy of about +/- 0.4 mm at steady running speeds.

Immediately before the web passes through the diecutter, the web passes through a static neutralizer 421, preferably an electronic or ionizer static neutralizer. Preferably, the static neutralizer comprises a pair of rigid electrodes 422 on a rigid bar 421 installed between about 0.5" and 1.0" from the web. There should be at least 6 mm of free air space above and beneath the web.

After passing through the diecutter 407, the material is routed through means for separating the printed pads from the web. A preferred separation means comprises a 90 degree turn-around a bar 423, preferably about 1/8 inch thick and about 1 inch wide, positioned above the web. The bar 423 works in connection with a small roller 425, preferably about 1 inch in diameter, positioned immediately after the bar 423 and beneath the web. The combination of the bar 423 and the roller 425 cause the printed pads that have been cut from the web to separate

from the web and drop onto a driven conveyor 427 positioned beneath the small roller 425. The remaining web material is routed to a web removal rewind station.

The driven conveyor 427 is preferably comprises a separate conveyor for each column of printed designs. Since in a preferred embodiment of the present invention the designs are printed in rows of 4 columns across the web which is then divided in 2 parts before the cutting and stacking procedure, the driven conveyor 427 comprises pair of driven conveyors as shown in Figure 4. The conveyors are independently driven slowly enough that the each printed pad drops onto the preceding pad and overlaps the preceding pad, preferably by about 90%, resulting in a shingled line of pads on the conveyor. A moveable gate 453, preferably a pneumatically operated gate, is positioned above each conveyor at a position downstream from where the pads drop onto the conveyor. The gate has a first lowered position in which it blocks the progress of the shingled row of pads along the conveyor and a second raised position in which it allows the shingled row of pads to proceed along the conveyor.

A pair of optical sensors 431, positioned above the roller 425 and just before the conveyors 427, sense each pad as it separates from the web and send a signal to a controller having an electronic counter. When the counter reaches a predetermined count for the conveyor, the controller signals the gate to move from the lowered position to the raised position and briefly increases the speed of the conveyor. As a result, stacks having the desired number of pads are advanced in discreet stacks along the conveyor where they may be manually packaged.

Those of ordinary skill in the art will recognize that many modifications and variations of the present invention may be implemented. The foregoing description and the following claims are intended to cover all such modifications and variations.

What is claimed is:

- ✓ 1. A pad for carrying liquid, comprising:
 - a piece of non-woven material wherein the piece of material is capable of absorbing an amount of the liquid at least about 1.5 times the weight of the piece of material;
 - a first printed ink on a first surface of the material;
 - a second printed ink on either the first or a second surface of the material;
 - wherein the first ink is substantially in register with the second ink.
2. The pad of claim 1, wherein the second printed ink is printed on the first surface and further comprising a printed ink on a second surface of the material and wherein the inks printed on the first and second surfaces are substantially in register.
3. The pad of claim 2, wherein the printed inks on the first and second surfaces of the material form first and second designs and the first and second designs are substantially the same.
4. The pad of claim 1, wherein the material has a thickness of about 30 mils to 50 mils.
5. The pad of claim 1, wherein the material is a non-woven polyester.
6. The pad of claim 5, wherein the material has a density of at least about 2.5 oz. per square yard.
7. The pad of claim 5, wherein the material has a density of about 4 oz. per square yard.
8. The pad of claim 1, wherein the material is a polyester cellulose blend.
9. The pad of claim 8, wherein the material is about 45% polyester and about 55% cellulose.
10. The pad of claim 1, wherein the designs are printed with ink that is approved by the United States Food and Drug Administration.
11. The pad of claim 10 herein the designs are printed with ink that is approved under California Proposition 65.

12. The pad of claim 11 wherein the designs are printed with ink that is compliant with CONEG.
13. The pad of claim 1, wherein the designs are printed with ink that is substantially non-leaching.
14. The pad of claim 13 wherein the ink is a non-carbon gravure ink.
15. The pad of claim 14 wherein the ink has a viscosity of about 17 to 30 seconds in a no. 2 Zahn.
16. The pad of claim 1, wherein said piece of material is substantially circular.
17. The pad of claim 3:
- wherein the design on the first surface is substantially the same as the design on the second surface;
- the material has a thickness of about 30 mils to 50 mils;
- the designs are printed with ink that is approved by the United States Food and Drug Administration;
- the designs are printed with ink that is approved under California Proposition 65;
- the designs are printed with ink that is compliant with CONEG;
- the designs are printed with ink that is substantially non-leaching;
- the ink is a non-carbon gravure ink;
- the ink has a viscosity of about 17 to 30 seconds in a no. 2 Zahn;
- said piece of material is substantially circular.
18. The pad of claim 17, wherein material pad is a non-woven polyester having a density of about 4 oz. per square yard.
19. The pad of claim 17, wherein the material is about 45% polyester and about 55% cellulose.

✓ 20. A method for making a printed pad for carrying a liquid comprising the steps of:

feeding a web of non-woven material into a rotogravure press, wherein the material is

capable of absorbing at least about 1.5 times its own weight of the liquid;

printing a first ink with the press on a first surface of the web;

printing a second ink with the press substantially in register with the first ink on the first surface or a second surface of the web.

21. The method of claim 20 wherein the second ink is printed on the first surface of the web and further comprising the step of printing an ink on the second surface of the web.

22. The method of claim 21 wherein the first and second designs are the same.

23. The method of claim 21, wherein the material is a non-woven polyester.

24. The method of claim 21, wherein the material is a polyester cellulose blend.

25. The method of claim 21, wherein the press comprises means for maintaining tension on the web and the means for maintaining tension on the web are set at the lowest tension sufficient to prevent the web from binding in the press.

26. The method of claim 24, wherein the web is fed into the press at about 105 to 115 feet per minute.

27. The method of claim 21, wherein the press comprises a first control station and the tension on the web at the first control station is about 15 lbs.

28. The method of claim 27, wherein the press comprises a second control station and the tension on the web at the second control station is about 12-14 lbs.

29. The method of claim 28, wherein the press comprises a third control station and the tension on the web at the third control station is about 12-14 lbs.

30. The method of claim 29, wherein the press comprises a fourth control station and the tension on the web at the fourth control station is about 12-14 lbs.
31. The method of claim 21, wherein the press comprises a dryer and the dryer is set at about 50° C.
32. The method of claim 21, wherein the press comprises a chill roller and the tension on the web at the chill roller is about 5-6 lbs.
33. The method of claim 21, wherein the press comprises a plurality of print cylinders in series and each print cylinder is about 0.0002 inches larger in diameter than the preceding print cylinder.
34. The method of claim 21, wherein the press comprises a print cylinder and the cylinder comprises a plurality of cells and each cell is about 195 microns wide, about 65 to 70 microns deep and carries an ink volume of about 1.76 cbm.
35. A system for cutting printed designs from a web of elastic material to form printed pads wherein the printed designs are printed on the web at a repeat length comprising:
- (a) a braked unwind station having a variable braking tension;
 - (b) an infeed station having an adjustable speed;
 - (c) a diecutter comprising a diecutting cylinder and a cylinder correction gearbox capable of correcting the position of the diecutting cylinder in a positive or negative rotational direction, wherein the circumference of the diecutting cylinder is greater than the repeat length.
 - (d) a first sensor for sensing the position of the printed designs on the web;
 - (e) a second sensor for sensing the position of the diecutting cylinder;

(f) a processor electronically coupled to the first sensor, the second sensor, the infeed station and the diecutter for controlling the infeed station and the diecutter in response to signals received from the sensors,

wherein the processor sends a correction signal to the diecutting cylinder in response to signals from the sensors, the processor comprises a first counter for counting the number of consecutive corrections of the diecutting cylinder in the same direction and sending a correction signal to the infeed station when a predetermined number of consecutive corrections of the diecutting cylinder is reached.

36. The system of claim 35, wherein the processor sends a correction signal to the infeed station after 4 consecutive corrections of the diecutting cylinder.

37. The system of claim 35, wherein the printed designs on the web have a repeat length and the diecutting cylinder has a repeat length about 0.5% greater than the repeat length than the repeat length of the designs on the web.

38. The system of claim 35 further comprising means for separating the printed pads from the web material after the web has passed through the die cutter.

39. The system of claim 35 further comprising means for neutralizing the static charge of the web.

40. The system of claim 35 further comprising:

(a) a conveyor, having a variable speed motor controlled by the processor, for receiving the printed pad after the printed pad is separated from the web;

(b) a sensor electronically coupled to the processor for sending a signal to the processor each time a printed pads is received on the conveyor;

wherein the processor comprises a second counter for counting the number of pads received on the conveyor and when a predetermined number of pads is received on the conveyor the processor sends a signal to the conveyor motor to temporarily increase the speed of the conveyor.

41. The system of claim 40 further comprising a gate having a first position immediately above the conveyor in which the gate impedes the progress of the printed pads on the conveyor and a second position above the first position in which the gate does not impede the progress of the printed pads on the conveyor, wherein the gate is electronically coupled to the processor and the processor sends a signal to raise the gate at the same time the processor sends a signal to increase the speed of the conveyor.

42. The system of claim 34, wherein the processor sends a signal to an operator to adjust the braking tension on the unwind station when the corrections to the infeed station exceed a predetermined threshold.

43. A pad comprising:

a piece of non-woven material wherein the material is a non-woven polyester or a polyester-cellulose blend; and

a first printed ink on a first surface of the material wherein said piece of non-woven material is formed from a web of said non-woven material which piece is formed with substantially the same dimensions and shape as other pieces of non-woven material formed from the same web.

44. The pad of claim 43 further comprising a second printed ink on either the first or a second surface of the material; wherein the first ink is substantially in register with the second ink.

45. The pad of claim 43, wherein the second printed ink is printed on the first surface and further comprising a printed ink on a second surface of the material and wherein the inks printed on the first and second surfaces are substantially in register.
46. The pad of claim 45, wherein the printed inks on the first and second surfaces of the material form first and second designs and the first and second designs are substantially the same.
47. The pad of claim 43, wherein the material has a thickness of about 30 mils to 50 mils.
48. The pad of claim 43, wherein the material has a density of at least about 2.5 oz. per square yard.
49. The pad of claim 43, wherein the material has a density of about 4 oz. per square yard.
50. The pad of claim 43, wherein the material is about 45% polyester and about 55% cellulose.
51. The pad of claim 43, wherein the designs are printed with ink that is approved by the United States Food and Drug Administration.
52. The pad of claim 51 wherein the designs are printed with ink that is approved under California Proposition 65.
53. The pad of claim 52 wherein the designs are printed with ink that is compliant with CONEG.
54. The pad of claim 43, wherein the designs are printed with ink that is substantially non-leaching.
55. The pad of claim 54 wherein the ink is a non-carbon gravure ink.
56. The pad of claim 55 wherein the ink has a viscosity of about 17 to 30 seconds in a no. 2 Zahn.
57. The pad of claim 43, wherein said shape is substantially circular.
58. A pad comprising:
a piece of non-woven material wherein the material comprises either a polyester or a polyester cellulose blend; and

a first ink printed on a first surface of the piece of non-woven material, wherein the ink is substantially non-leaching.

59. A pad comprising:

a piece of non-woven material wherein the material comprises either a polyester or a polyester cellulose blend; and

a first ink printed on a first surface of the piece of non-woven material, wherein the ink forms a design and wherein the ink does not substantially diffuse in the piece of non-woven material to cause significant distortion of the design.

ABSTRACT

The present invention is directed to a pad for carrying liquid having a piece of non-woven material wherein the piece of material is capable of absorbing an amount of the liquid at least about 1.5 times the weight of the piece of material, a first printed ink on a first surface of the material, and a second printed ink on either the first or a second surface of the material, and wherein the first ink is substantially in register with the second ink. The present invention is also directed to a method for making a printed pad for carrying a liquid including the steps of feeding a web of non-woven material into a rotogravure press, wherein the material is capable of absorbing at least about 1.5 times its own weight of the liquid, printing a first ink with the press on a first surface of the web, printing a second ink with the press substantially in register with the first ink on the first surface or a second surface of the web. The present invention is also directed to a system for cutting printed designs from a web of elastic material to form printed pads wherein the printed designs are printed on the web at a repeat length having: a braked unwind station having a variable braking tension; an infeed station having an adjustable speed; a diecutter having a diecutting cylinder and a cylinder correction gearbox capable of correcting the position of the diecutting cylinder in a positive or negative rotational direction, wherein the circumference of the diecutting cylinder is greater than the repeat length; a first sensor for sensing the position of the printed designs on the web; a second sensor for sensing the position of the diecutting cylinder; a processor electronically coupled to the first sensor, the second sensor, the infeed station and the diecutter for controlling the infeed station and the diecutter in response to signals received from the

sensors, wherein the processor sends a correction signal to the diecutting cylinder in response to signals from the sensors, the processor comprises a first counter for counting the number of consecutive corrections of the diecutting cylinder in the same direction and sending a correction signal to the infeed station when a predetermined number of consecutive corrections of the diecutting cylinder is reached.

668023 "P.E.H.E.G"

Figure 1

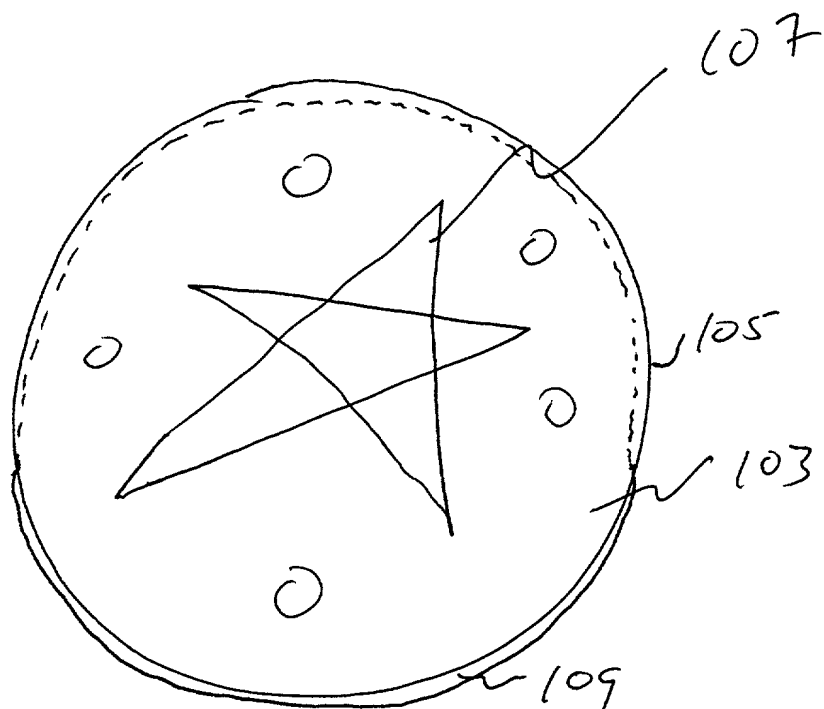
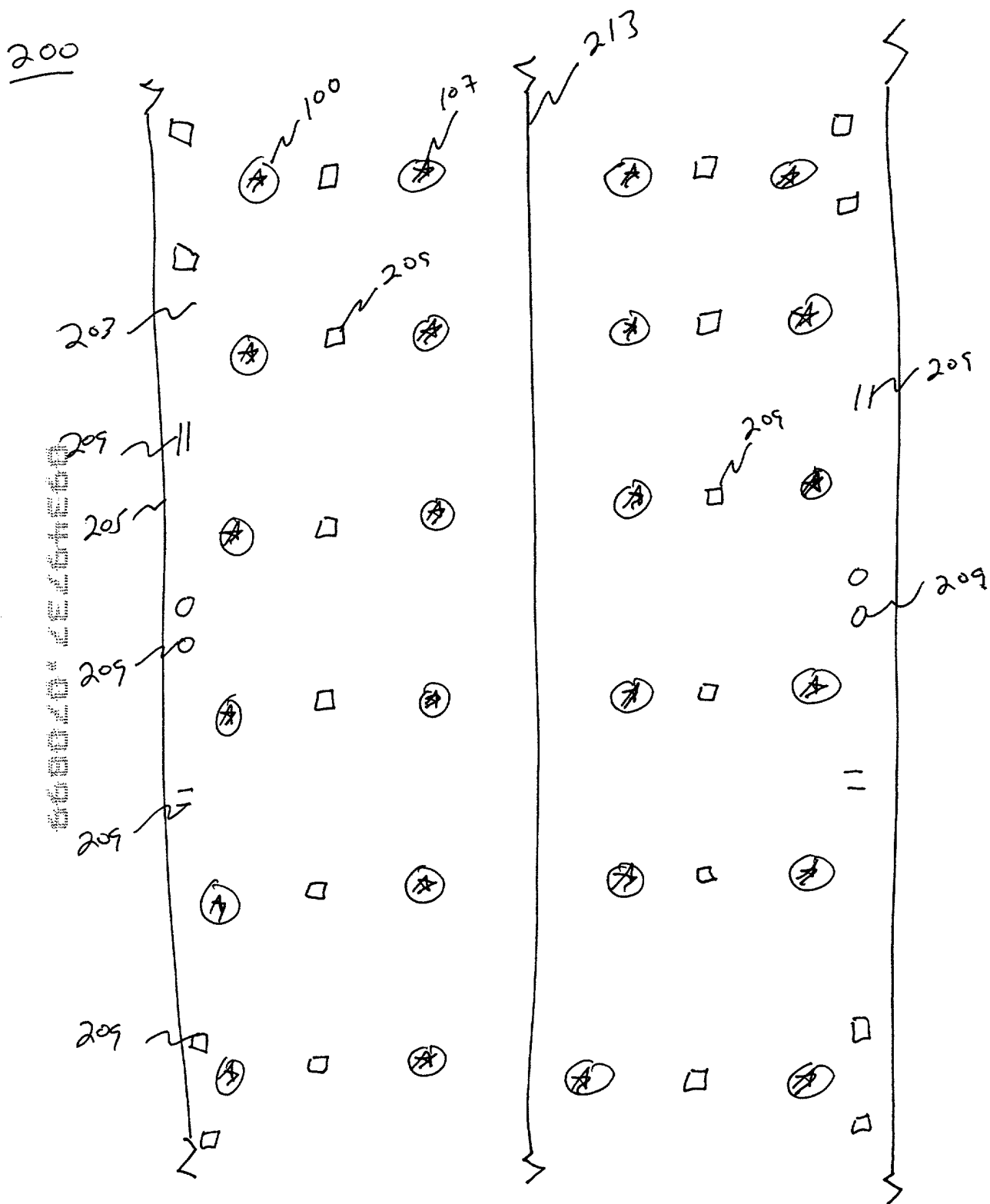


Figure 2



300

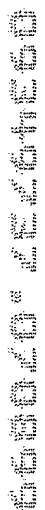
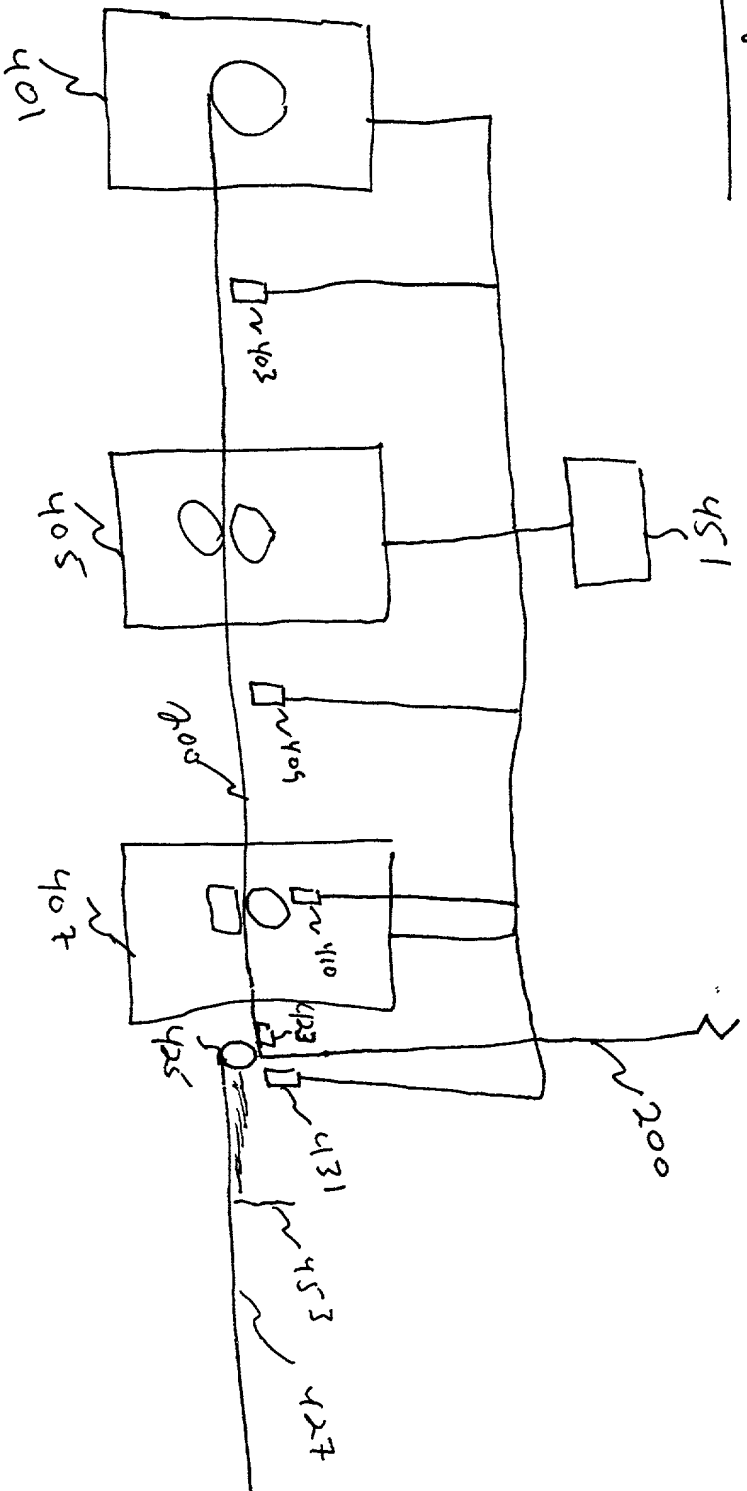


Figure 5



Downloaded from ascelibrary.org by University of California, San Diego on 06/01/15

Figure 6



COMBINED DECLARATION AND POWER OF ATTORNEY

(ORIGINAL, DESIGN, NATIONAL STAGE OF PCT, SUPPLEMENTAL, DIVISIONAL,
CONTINUATION, OR C-I-P)

As a below named inventor, I hereby declare that:

TYPE OF DECLARATION

This declaration is of the following type:

(check one applicable item below)

- ☒ original.
- ☐ design.
- ☐ supplemental.

NOTE: If the declaration is for an International Application being filed as a divisional, continuation or continuation-in-part application, do not check next item; check appropriate one of last three items.

- ☐ national stage of PCT.

NOTE: If one of the following 3 items apply, then complete and also attach ADDED PAGES FOR DIVISIONAL, CONTINUATION OR C-I-P.

NOTE: See 37 C.F.R. § 1.63(d) (continued prosecution application) for use of a prior nonprovisional application declaration in the continuation or divisional application being filed on behalf of the same or fewer of the inventors named in the prior application.

- ☐ divisional.
- ☐ continuation.

NOTE: Where an application discloses and claims subject matter not disclosed in the prior application, or a continuation or divisional application names an inventor not named in the prior application, a continuation-in-part application must be filed under 37 C.F.R. § 1.53(b) (application filing requirements — nonprovisional application).

- ☐ continuation-in-part (C-I-P).

INVENTORSHIP IDENTIFICATION

WARNING: If the inventors are each not the inventors of all the claims, an explanation of the facts, including the ownership of all the claims at the time the last claimed invention was made, should be submitted.

My residence, post office address and citizenship are as stated below, next to my name. I believe that I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter that is claimed, and for which a patent is sought on the invention entitled:

TITLE OF INVENTION

FABRIC PADS WITH A PRINTED DESIGN AND A METHOD FOR MAKING FABRIC PADS
WITH A PRINTED DESIGN

SPECIFICATION IDENTIFICATION

the specification of which:

(complete (a), (b), or (c))

(a) ☒ is attached hereto.

NOTE: "The following combinations of information supplied in an oath or declaration filed on the application filing date with a specification are acceptable as minimums for identifying a specification and compliance with any one of the items below will be accepted as complying with the identification requirement of 37 CFR 1.63:

"(1) name of inventor(s), and reference to an attached specification which is both attached to the oath or declaration at the time of execution and submitted with the oath or declaration on filing;

"(2) name of inventor(s), and attorney docket number which was on the specification as filed;
or

"(3) name of inventor(s), and title which was on the specification as filed."

Notice of July 13, 1995 (1177 O.G. 60).

(b) ☐ was filed on _____, as ☐ Serial No. 0 / _____
or ☐ _____
and was amended on _____ (if applicable).

NOTE: Amendments filed after the original papers are deposited with the PTO that contain new matter are not accorded a filing date by being referred to in the declaration. Accordingly, the amendments involved are those filed with the application papers or, in the case of a supplemental declaration, are those amendments claiming matter not encompassed in the original statement of invention or claims. See 37 C.F.R. § 1.67.

NOTE: "The following combinations of information supplied in an oath or declaration filed after the filing date are acceptable as minimums for identifying a specification and compliance with any one of the items below will be accepted as complying with the identification requirement of 37 CFR 1.63:

"(A) application number (consisting of the series code and the serial number, e.g., 08/123,456);

"(B) serial number and filing date;

"(C) attorney docket number which was on the specification as filed;

"(D) title which was on the specification as filed and reference to an attached specification which is both attached to the oath or declaration at the time of execution and submitted with the oath or declaration; or

"(E) title which was on the specification as filed and accompanied by a cover letter accurately identifying the application for which it was intended by either the application number (consisting of the series code and the serial number, e.g., 08/123,456), or serial number and filing date. Absent any statement(s) to the contrary, it will be presumed that the application filed in the PTO is the application which the inventor(s) executed by signing the oath or declaration."

M.P.E.P. § 601.01(a), 7th Ed.

(c) ☐ was described and claimed in PCT International Application No. _____, filed on _____ and as amended under PCT Article 19 on _____ (if any).

SUPPLEMENTAL DECLARATION (37 C.F.R. § 1.67(b))

(complete the following where a supplemental declaration is being submitted)

- ☐ I hereby declare that the subject matter of the
- ☐ attached amendment
 - ☐ amendment filed on _____

was part of my/our invention and was invented before the filing date of the original application, above-identified, for such invention.

ACKNOWLEDGEMENT OF REVIEW OF PAPERS AND DUTY OF CANDOR

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information, which is material to patentability as defined in 37, Code of Federal Regulations, § 1.56,

(also check the following items, if desired)

- ☐ and which is material to the examination of this application, namely, information where there is a substantial likelihood that a reasonable Examiner would consider it important in deciding whether to allow the application to issue as a patent, and
- ☐ In compliance with this duty, there is attached an information disclosure statement, in accordance with 37 C.F.R. § 1.98.

PRIORITY CLAIM (35 U.S.C. §§ 119(a)-(d))

NOTE: *"The claim to priority need be in no special form and may be made by the attorney or agent if the foreign application is referred to in the oath or declaration as required by § 1.63. The claim for priority and the certified copy of the foreign application specified in 35 U.S.C. 119(b) must be filed in the case of an interference (§ 1.630), when necessary to overcome the date of a reference relied upon by the examiner, when specifically required by the examiner, and in all other situations, before the patent is granted. If the claim for priority or the certified copy of the foreign application is filed after the date the issue fee is paid, it must be accompanied by a petition requesting entry and by the fee set forth in § 1.17(i). If the certified copy is not in the English language, a translation need not be filed except in the case of interference; or when necessary to overcome the date of a reference relied upon by the examiner; or when specifically required by the examiner, in which event an English language translation must be filed together with a statement that the translation of the certified copy is accurate." 37 C.F.R. § 1.55(a).*

I hereby claim foreign priority benefits under Title 35, United States Code, §§ 119(a)-(d) of any foreign application(s) for patent or inventor's certificate or of any PCT international application(s) designating at least one country other than the United States of America listed below and have also identified below any foreign application(s) for patent or inventor's certificate or any PCT international application(s) designating at least one country other than the United States of America filed by me on the same subject matter having a filing date before that of the application(s) of which priority is claimed.

(complete (d) or (e))

- (d) ☐ no such applications have been filed.
- (e) ☐ such applications have been filed as follows.

NOTE: *Where item (c) is entered above and the International Application which designated the U.S. itself claimed priority check item (e), enter the details below and make the priority claim.*

**PRIOR FOREIGN/PCT APPLICATION(S) FILED WITHIN 12 MONTHS
(6 MONTHS FOR DESIGN) PRIOR TO THIS APPLICATION
AND ANY PRIORITY CLAIMS UNDER 35 U.S.C. § 119(a)-(d)**

COUNTRY (OR INDICATE IF PCT)	APPLICATION NUMBER	DATE OF FILING (day, month, year)	PRIORITY CLAIMED UNDER 37 USC 119
			<input type="checkbox"/> YES NO <input type="checkbox"/>
			<input type="checkbox"/> YES NO <input type="checkbox"/>
			<input type="checkbox"/> YES NO <input type="checkbox"/>
			<input type="checkbox"/> YES NO <input type="checkbox"/>
			<input type="checkbox"/> YES NO <input type="checkbox"/>

CLAIM FOR BENEFIT OF PRIOR U.S. PROVISIONAL APPLICATION(S)
(34 U.S.C. § 119(e))

I hereby claim the benefit under Title 35, United States Code, § 119(e) of any United States provisional application(s) listed below:

PROVISIONAL APPLICATION NUMBER

60 / 125,847

FILING DATE

March 24, 1999

**CLAIM FOR BENEFIT OF EARLIER US/PCT APPLICATION(S)
UNDER 35 U.S.C. § 120**

- ☐ The claim for the benefit of any such applications are set forth in the attached ADDED PAGES TO COMBINED DECLARATION AND POWER OF ATTORNEY FOR DIVISIONAL, CONTINUATION OR CONTINUATION-IN-PART (C-I-P) APPLICATION.

**ALL FOREIGN APPLICATION(S), IF ANY, FILED MORE THAN 12 MONTHS
(6 MONTHS FOR DESIGN) PRIOR TO THIS U.S. APPLICATION**

NOTE: If the application filed more than 12 months from the filing date of this application is a PCT filing forming the basis for this application entering the United States as (1) the national stage, or (2) a continuation, divisional, or continuation-in-part, then also complete ADDED PAGES TO COMBINED DECLARATION AND POWER OF ATTORNEY FOR DIVISIONAL, CONTINUATION OR C-I-P APPLICATION for benefit of the prior U.S. or PCT application(s) under 35 U.S.C. § 120.

POWER OF ATTORNEY

I hereby appoint the following practitioner(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith.

(list name and registration number)

Louis M. Heidelberger, Reg. No. 27,899; John W. Goldschmidt, Jr., Reg. No. 34,828; Daniel H. Golub, Reg. No. 33,701; William J. McNichol, Jr., Reg. No. 31,179; R. Anthony Diehl, Reg. No. 38,432; Maryellen Feehery, Reg. No. P-44,677; Alison B. Weisberg, Reg. No. P-45,206; Ethan D. Civan, Reg. No. P-44,459; Nanda P.B.A. Kumar, Reg. No. P-44,853; Matthew J. Esserman, Reg. No. 41,536; Frederick H. Colen, Reg. No. 28,061; Arland T. Stein, Reg. No. 25,062; W. Scott Railton, Reg. No. 23,039; Gene A. Tabachnick, Reg. No. 33,801; Raymond A. Miller, Reg. No. 42,891; Maria N. Rullo, Reg. No. 37,433; Barry J. Coyne Reg. No. 43,566; Ayla A. Lari, Reg. No. 43,739; Kirsten R. Rydstrom, Reg. No. 38,603; Paul D. Bangor, Jr., Reg. No. 34,768; Cheryl L. Gastineau, Reg. No. 39,469; Ian K. Samways, Reg. No. 36,664; Charles H. Dougherty, Jr., Reg. No. 42,494; Mary E. Buckles, Reg. No. 31,907 and Ronald J. Campbell, Reg. No. 33,842.

SEND CORRESPONDENCE TO

☒ Address

REED SMITH SHAW & McCLAY LLP
2500 One Liberty Place
1650 Market Street
Philadelphia, PA 19103-7301
Attn: Louis M. Heidelberger, Esquire

☐ Customer Number _____

DIRECT TELEPHONE CALLS TO:
(Name and telephone number)

Louis M. Heidelberger
(215) 851-8100

DECLARATION

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

SIGNATURE(S)

NOTE: Carefully indicate the family (or last) name, as it should appear on the filing receipt and all other documents.

NOTE: Each inventor must be identified by full name, including the family name, and at least one given name without abbreviation together with any other given name or initial, and by his/her residence, post office address and country of citizenship. 37 CFR § 1.63(a)(3).

NOTE: Inventors may execute separate declarations/oaths provided each declaration/oath sets forth all the inventors. Section 1.63(a)(3) requires that a declaration/oath, inter alia, identify each inventor and prohibits the execution of separate declarations/oaths which each sets forth only the name of the executing inventor. 62 Fed. Reg. 53,131, 53,142, October 10, 1997,

Full name of sole or first inventor

Dean R. Shacklett
(GIVEN NAME) (MIDDLE INITIAL OR NAME) FAMILY (OR LAST NAME)

Inventor's signature _____

Date _____ Country of Citizenship U.S.A.

Residence _____

Post Office Address 1785 Governor's Way, Blue Bell, PA 19422

Full name of second joint inventor, if any

Neil G. Sellars
(GIVEN NAME) (MIDDLE INITIAL OR NAME) FAMILY (OR LAST NAME)

Inventor's signature _____

Date _____ Country of Citizenship U.S.A.

Residence _____

Post Office Address 2120 Magnolia Court, Cinnaminson, NJ 08077

Full name of third joint inventor, if any

Richard Snyder
(GIVEN NAME) (MIDDLE INITIAL OR NAME) FAMILY (OR LAST NAME)

Inventor's signature _____

Date _____ Country of Citizenship U.S.A.

Residence _____

Post Office Address 2724 Gail Drive, Gilbertsville, PA 19525

(check proper box(es) for any of the following added page(s)
that form a part of this declaration)

☒ **Signature** for fourth and subsequent joint inventors. *Number of pages added*

* * *

☐ **Signature** by administrator(trix), executor(trix) or legal representative for de-
ceased or incapacitated inventor. *Number of pages added* _____

* * *

☐ **Signature** for inventor who refuses to sign or cannot be reached by person
authorized under 37 CFR 1.47. *Number of pages added* _____

* * *

☐ Added page for **signature** by one joint inventor on behalf of deceased inventor(s)
where legal representative cannot be appointed in time. (37 CFR 1.47)

* * *

☐ Added pages to combined declaration and power of attorney for divisional,
continuation, or continuation-in-part (C-I-P) application.

☐ Number of pages added _____

* * *

☐ Authorization of practitioner(s) to accept and follow instructions from representa-
tive.

* * *

(if no further pages form a part of this Declaration,
then end this Declaration with this page and check the following item)

☐ This declaration ends with this page.

Please type a plus sign (+) inside this box → ☐

PTO/SB/02A (3-87)

Approved for use through 8/30/98. OMB 0851-0082

Patent and Trademark Office, U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

DECLARATION	ADDITIONAL INVENTOR(S) Supplemental Sheet Page ___ of ___
--------------------	---

Name of Additional Joint Inventor, if any:		<input type="checkbox"/> A petition has been filed for this unsigned inventor					
Given Name (first and middle if any)				Family Name or Surname			
David				Wallace			
Inventor's Signature						Date	
Residence: City		State		Country		Citizenship	U.S.A.
Post Office Address 2756 Audubon Road							
Post Office Address							
City	Audubon	State	PA	ZIP	19403	Country	U.S.A.
Name of Additional Joint Inventor, if any:		<input type="checkbox"/> A petition has been filed for this unsigned inventor					
Given Name (first and middle if any)				Family Name or Surname			
James				Mundy			
Inventor's Signature						Date	
Residence: City		State		Country		Citizenship	U.S.A.
Post Office Address							
Post Office Address 119 Meadowcrest Lane							
City	Douglassville	State	PA	ZIP	19518	Country	U.S.A.
Name of Additional Joint Inventor, if any:		<input type="checkbox"/> A petition has been filed for this unsigned inventor					
Given Name (first and middle if any)				Family Name or Surname			
Gabriel				Imhof			
Inventor's Signature						Date	
Residence: City		State		Country		Citizenship	U.S.A.
Post Office Address 965 Conestoga Road							
Post Office Address							
City	Berwyn	State	PA	ZIP	19312	Country	U.S.A.

Burden Hour Statement: This form is estimated to take 0.4 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

Declaration — Additional Inventor(s) Supplemental Sheet (PTO/SB/02A)[1-1.2]